Office Memorandum • UNITED STATES GOVERNMENT

TO : The Files

DATE: 9 November 1956

FROM : [redacted] 25X1

SUBJECT: (Trip Report - Contract RD-107, Task Order 3)

1. On 25 October 1956, a meeting was held at [redacted] 25X1
[redacted] to discuss progress on the 25X1
subject contract. Present at the meeting were:

[redacted] 25X1

2. [redacted] stated that preliminary testing of the wideband 25X1
ferrite has yielded conflicting results. Tests by [redacted] group 25X1
were performed in an open field in which a signal generator fed a dipole and a receiving antenna fed a field strength meter. The ferrite antenna and a dipole were used as receiving antennas and this test yielded ferrite antenna gains of from 15 db below a dipole at 200 Mc. to 40 db below a dipole at 60 Mc. Possible sources of error in this test include ferrite antenna impedance mismatch, reflections from the transmission line affecting the ferrite more than the dipole (because the ferrite uses the magnetic field while the dipole uses the electric field), and less than optimum ferrite antenna orientation. When the ferrite antenna and dipoles were connected to a T.V. set and the AVC voltage measured, the ferrite yielded sensitivities equal to a dipole at all channels. 300 ohm twin lead was used in this test and there may have been pickup in the twin lead itself.

3. [redacted] will continue testing the ferrite antenna. The tests will be 25X1
performed on the ferrite alone without crystal and matched into the transmission line with a wideband balun. The test program will determine the gain, antenna pattern, impedance, and frequency response from 50 to 250 megacycles. The tests will be performed in an open field test range since the [redacted] screen room will not be completed in time. [redacted] feels that running 25X1
response curves outside the 50 to 250 megacycles band is beyond the scope of the original contract and they have declined to bid on running the tests 25X1
as an extension to the contract. They feel that the work is not the type that can be efficiently done in a research laboratory. The testing is planned for completion by 1 December 1956.

4. Two types of broadband antennas were considered, one containing two ferrite rods, a sample of which was delivered on 11 October 1956, and

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one containing a single ferrite rod. Sensitivity measurements indicated that the single ferrite antenna was the more sensitive and it will therefore be the design delivered.

5. Five broadband antennas of the single ferrite type were delivered to the writer on 25 October 1956. It is expected that all other deliverable antennas will have been shipped by 12 November 1956.

6. The project engineer has been able to spend some time on phase B of this task order. [redacted] stated that there had been no increase in cost or scope of this task order as of that date. [redacted] was told that it was not necessary to supply instruction books or individual calibration curves on the tunable antennas. [redacted] was asked not to put the impedance matching transformer in the wideband unit. 25X1 25X1 25X1

7. The attached response characteristic on one of the wideband ferrites show that in a horizontally polarized field there is very little difference between vertical and horizontal position of the ferrite antenna. In this curve the ordinate is "db below some arbitrary reference". It shows that "suck-outs" in the response curve are only one or two db deep. This is a preliminary test and may be superseded by the results of the later test program. curve sent to [redacted] nov 22 25X1

8. The suggestion of using the ferrite as a non-linear impedance so that CW or FSK signals may be detected on a crystal video receiver was discussed with [redacted] He promised to look into the matter. 25X1

[redacted] 25X1

Attachment as stated in Paragraph 7 ✓